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Perceptions regarding helmet use: a cross-sectional survey of female pillions in Karachi, Pakistan

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ABSTRACT

Background: In 2011, road traffic injury—associated fatalities among motorized two-wheeler (MTW) pillion riders (backseat two-wheeler passengers) rose 30% in Karachi. Despite mandatory helmet laws, helmet use fell 20% the same year. This study aims to identify opinions of female pillions on helmet usage and whether various forms of media influence their self-perception.

Methods: Trained surveyors, using a survey tool used in similar studies in South Asia, conducted random, man-on-the-street interviews of 400 women in four areas of Karachi. Data pertaining to demographics, opinions on helmet laws, media influences, and helmet usage were collected. Data were analyzed in SAS 9.3 using chi-squared or Fisher's exact tests.

Results: Of the 400 women, 98.8% ($n = 394$) reported never wearing a helmet while riding on a MTW as a pillion rider. Women with a postsecondary or higher (US ninth grade) education level were more likely to be aware of helmet laws (38.6%) than women with lower education levels (24.6%, $P = 0.005$). Most women (82.4%, $n = 329$) supported mandatory laws and 97% ($n = 289$) recognized that disability was the more likely to result than death in event of a traumatic brain injury. Nearly all (98.5%, $n = 394$) stated that they would use a helmet if they were men, regardless of age, education level, or employment status. Television news was the most influential media form (83.7%, $n = 334$), with most women finding it effective because of its informative nature (91.3%, $n = 303$).

Conclusions: Most Pakistani women do not personally use helmets when riding MTWs, yet most believe helmet use should be legally required for MTW riders and drivers. These data show that media outlets such as television can be used as a platform to educate the public about helmet usage, which may lead to improved helmet compliance among female MTW pillions in Pakistan. Furthermore, investigations into improved helmet comfort and appearance by collaborating with helmet manufacturers may have a positive impact on helmet use in Pakistan.

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Introduction

According to the World Health Organization's (WHO) Global Road Safety Report 2015, approximately 1.25 million people die annually as a result of road traffic crashes. Half of these crashes involve "vulnerable road users" including pedestrians, cyclist, and motorcyclists. Motorized two wheelers (MTWs) are the most prevalent mode of transportation in low- and middle-income countries. However, because of minimal safety features, they are statistically more likely to be involved in serious accidents.¹

In China, motorcycle ownership between year 1987 and 2001 grew rapidly from 23% to 63%, with a corresponding increase in the proportion of traffic fatalities sustained by motorcyclists rising from 7.5% to 19% over the same period.² This trend is seen across South and South East Asia, with the proportion of MTW-associated road accident fatalities ranging from 27% in India,³ 60% in Malaysia,⁴ and between 60% and 90% in Thailand.⁵

Pakistan, a developing country of 182 million people,⁶ has more than 9 million registered vehicles, 61.2% of which are two- or three-wheeler vehicles. According to the WHO's report, 7636 road traffic injury (RTI)-associated fatalities were reported from Pakistan in 2013.⁷ However, underreporting skews, these numbers such that the WHO estimated an actual 25,781 RTI-associated fatalities, most of which involved two- and three-wheeler vehicles. The Road Traffic Injury Research and Prevention Center is an organization based in Karachi, Pakistan, that is actively involved in surveillance of RTIs in Karachi. According to data they collected in 2013, there were 1130 fatalities that year with 51% of those being MTW drivers and pillion (backseat MTW passenger) riders.⁸

Helmets are considered the primary mode of protection against head injuries with regards to MTW, reducing the risk of death by 42% and the risk of head injury by 69%.⁹ These data strongly support the use of helmets, and Pakistan has passed legislation mandating helmet use for all MTW riders. However, empirically compliance with these laws remains low, and helmets are rarely used by female pillion riders. Studies in culturally similar neighboring India have shown a low helmet compliance rate among female pillion riders despite the existence of a mandatory helmet law. Our study aims to determine the attitudes of female pillion riders regarding helmet usage and determine whether various media outlets influence these perceptions. We hypothesize that most women will not be aware of Pakistan's existing helmet laws. We also hypothesize that most women will report that television media outlets are influential on their helmet use habits.

Methods

A survey was developed in English comprising of 25 multiple-choice questions with each question followed by an open-ended query (Appendix 1). The survey included questions regarding demographics, opinion on helmet laws, media influences, and helmet use. A trained bilingual survey administrator translated the survey from English to Urdu. The sample survey was tested on 15 random individuals, and the survey was

adjusted to improve internal validity. These 15 surveys were not included in the data set for analysis. Five trained survey administrators completed 400 surveys at four popular shopping centers in Karachi, Pakistan: Gulf Shopping Center, Tariq road, Saddar Bazaar, and Meena Bazaar. These were chosen because of their heavy volume of female pedestrian traffic.

Females aged ≥ 18 y were included for survey administration, and females aged < 18 y were excluded. A verbal consent was obtained before the interview. The survey was administered in a face-to-face interview in Urdu, whereby trained survey administrators read the questions for the respondents and recorded the responses on paper. No identifying information from respondents was queried or recorded.

The collected responses were entered into Microsoft Excel (Microsoft Corporation, Redmond, WA). Similar themes among the open-ended answers were identified, and the responses were grouped into these themes categories for analysis. The data were analyzed in SAS version 9.3 (Cary, NC), and Microsoft Excel Comparisons of respondents' use of helmets and beliefs regarding helmet and head injuries were made using chi-squared and Fisher's exact tests. The Ethics Committee of Aga Khan University Hospital approved this study.

Results

All 400 surveys were completed in Urdu. Several forms were partially completed; completed responses from these surveys were included in our analyses.

Table 1 – Survey population demographics (n = 400).

	n	%
Age (y)		
≤ 25	138	34.5
26-40	180	45
≥ 41	82	20.5
Employment		
Working	127	31.7
Not working	273	68.2
Marital status		
Married	269	67.2
Unmarried	131	32.7
Education*		
None	20	5.0
High school	231	57.9
University	99	24.8
Advanced degree	49	12.3
Religion		
Muslim	365	91.3
Hindu	13	3.3
Christian	22	5.5

* Because of respondent omission, education level is reported for an n of 399 respondents rather than 400.

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